

REMARKS

Applicant notes with appreciation that claims 18, 21-23, 25 and 29 have been found allowable over the prior art.

Claim 18 was rejected for lack of antecedent basis. Applicant has amended claim 18 to depend from claim 17, in order to provide antecedent basis. Claims 6, 30 and 33 have also been amended to provide antecedent basis.

Following this amendment, the pending claims are 1-35, with claims 1, 6, 18, 30 and 33 being currently amended.

Applicant responds to the patentability rejections of the designated claims, under one or more of the three cited references, as follows.

The claims as amended are believed to be patentable over all of the prior art cited by the U.S. Examiner. Support for the amendment of claim 1 can be found at page 6, final paragraph and page 5, first full paragraph of the application.

Firstly, the examiner rejects prior claim 1 as being anticipated by Boyer et al. (U.S. 5,935,543). The method of amended claim 1 results in a solution of nanoparticles disaggregated in the solvent. Boyer relates to amorphous precipitated silica and the production of particles of silica. However, there is no suggestion in Boyer of a solution comprising disaggregated ultimate particles of silica. (The term "ultimate particles" appears to be used in Boyer to refer to an individual silica particle, as distinct from an aggregate of individual particles. See for example, col. 4, lines 21-21). The amorphous precipitated silica described in Boyer exists in the form of "aggregates of ultimate particles, agglomerates of aggregates, or a combination of both" (col. 4, lines 21-23), but there is no suggestion that the ultimate particles can exist in a disaggregated state. The washing step to which the examiner refers results not in a solution of nanoparticles

disaggregated in a solvent, but rather in a solution comprising clumps of ultimate particles. This can be seen from col. 8, lines 22-31 of Boyer, and the subsequent table. The table indicates that the mean ultimate particle size of the amorphous precipitated silica resulting from the method described is 13.7 nm, but that the median particle size (which is presumably the median size of agglomerates of ultimate particles (col. 4, lines 21-23)) is 18.9 μ m. Such an agglomerate cannot be described as a nanoparticle since it is not of a size that would be understood by a skilled person as a "nanoparticle," i.e. typically less than 100 nm across (see page 1, second paragraph of the present application). Therefore, Boyer does not teach or suggest a method as recited in amended claim 1.

Secondly, the examiner rejects prior claim 1 as being anticipated by Maitra et al. (U.S. 5,874,111). Maitra relates to organic nanoparticles, whereas the claims of the present application relate to inorganic nanoparticles. The skilled person would not assume that organic and inorganic nanoparticles would display the same behavior, or that the same methods for preparing organic nanoparticles could successfully be used to produce inorganic nanoparticles. Therefore the teaching of Maitra is not applicable to the claimed invention.

Thirdly, the examiner rejects prior claim 1 as being anticipated by Wiederhoft et al. (U.S. 5,840,111). Wiederhoft discloses methods for producing nanoparticles of TiO₂. The examiner cites in particular the step of washing the particles in alcohol and separating them by centrifugation. However, applicant submits that there is no disclosure in Wiederhoft of the production of a solution of disaggregated nanoparticles. Instead, the washing step is stated to be preferably performed "with the same

monobasic acid as was used for flocculation" (col. 5, lines 20-21). At col. 5, lines 4-7, it is stated that "the addition of the monobasic mineral acid reversibly flocculates the nanoparticles" and that "the resultant bulky flocs may readily be centrifuged and filtered." Thus, it seems that what is produced is not a solution of nanoparticles disaggregated in a solvent, but rather a solution containing "bulky flocs." There is no suggestion in Wiederhoft of how the skilled person might achieve disaggregation of the nanoparticles within the solvent.

It is therefore submitted that the claims as amended are patentable over Boyer, Maitra and Wiederhoft.

Applicant further asserts that independent claim 28, reciting an organic material containing a substantially uniform dispersion of nanoparticles, is also distinguishable from Wiederhoft. As noted, Wiederhoft appears to produce a solution containing "bulky flocs," and there is no suggestion of how a skilled person might achieve disaggregation of the nanoparticles within the solvent, nor an organic material containing a substantially uniform dispersion of nanoparticles. Thus Applicant respectfully asserts that claim 28, and claims 30-34 depending therefrom, patentably distinguish over Wiederhoft.

Independent method claim 35 recites tailoring at least one property of an organic material by forming a substantially uniform dispersion of nanoparticles in the organic material. Wiederhoft does not teach Applicant's claimed method for forming a substantially uniform dispersion of nanoparticles in the organic material.

Thus, Applicant respectfully requests that the pending claims 1-35 are now in condition for allowance.

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Applicant requests that the Examiner consider the Information Disclosure Statement which Applicant filed on February 6, 2004. The listed references were cited in a communication from the Japanese Patent Office in a corresponding foreign application. Applicant has submitted an English translation of the Japanese office action and the designated English language counterpart patents or abstracts.


In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916. Applicant respectfully requests the reconsideration and reexamination of this application and the timely allowance of the pending claims.

Respectfully submitted,

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